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THOMAS JEFFERSON: A PIONEER STUDENT OF AMERICAN GEOGRAPHY.

BY

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"Nature intended me for the tranquil pursuits of science by rendering them my supreme delight."
—JEFFERSON.

The biography of no American has been more thoroughly studied in the light of his political activities than that of Thomas Jefferson. As a lawyer, statesman, diplomat, linguist, and University founder, his biographers have given due credit, but very little has been written about his high attainments as a thorough and practical student of geography and science. No plausible explanation can be given, unless it be that his greater reputation as statesman and publicist overshadowed his lesser acquisitions in sciences which were largely for his personal pleasure. These acquisitions, however, reflected upon his public life, and find expression in many of the most critical and strategic relations which were confronted and solved by Jefferson during his long public service.

We do not make the claim that Jefferson should be accorded the credit of being "the father of American geography," since we do not believe that this honor can be ascribed to any single individual, for the assumption would have to be based either upon priority, or upon the character and extent of the investigation. Jedediah Morse (1761-1826) has been accredited by some as being "the father of American geography," but Jefferson was an acute observer in the field of geography before Morse had reached the age of ten years, and had published an elaborate and accurate (for the time) geography of Virginia five years before Morse's first publication. It is obvious, therefore, that in publication Jefferson antedated Morse. That Morse later wrote more elaborately is true, and that he did more for the introduction of geographic study in the schools of this country is certain. His books became most popular in the first and second decades of the nineteenth century, when interest in geography bloomed anew through the stimulus of the extensive continental explorations, which were begun early in Jefferson's first administra-

tion, and persistently prosecuted throughout his tenure of office. Morse's first book on geography was published in 1789, in which he says :

" So imperfect are all the accounts of America hitherto published * * that from them very little knowledge of this country can be acquired. Europeans have been the sole writers of American geography."

Notwithstanding this remarkable statement, we find in this same volume that, of the forty pages of space devoted to the geography of Virginia, more than thirty pages are quoted directly from Jefferson's "Notes on Virginia." This may have been an oversight on the part of Mr. Morse, but he fails to give due credit to at least one American author whose publication had been of material assistance to him.

Thomas Jefferson's father, Peter Jefferson, was a land surveyor, a diligent student of mathematics, and closely identified with the political interests of Virginia, being a member of the House of Burgesses in 1755. In 1749, Peter Jefferson was appointed one of the Commissioners to survey the boundary between Virginia and North Carolina, and was authorized to draw a map on the basis of this survey. This was completed in 1751. It is but natural that Thomas Jefferson should have taken an acute interest in this important work by his father. As early as 1772 he was thoroughly acquainted with the geographic boundaries of Virginia, and the situation and area occupied by the various Indian tribes east of the Mississippi River. There is no reason to doubt that his familiarity with the economic and geographic conditions of his country was recognized as fitting him the more perfectly to serve as minister plenipotentiary to Paris.

Jefferson's "Notes on Virginia" was written in 1781 and published in 1784, during his first year's residence in Paris. It must be recognised as distinctly a geographic contribution of great merit.

On the various subjects discussed, eighteen foreign authorities are cited. In these references he quotes and translates from four foreign languages, which not only shows the scope of his reading and information on scientific subjects, but also his versatility as a linguist. We believe that the order of presentation followed, is, from a systematic and economic standpoint, the most logical treatment to be found in any book on geography published in the eighteenth century. The chapters appear in the following order :

STATE BOUNDARIES; RIVERS; SEAPORTS; MOUNTAINS; MINERAL, VEGETABLE AND ANIMAL PRODUCTS; CLIMATE; POPULATION; ABORIGINES; GOVERNMENT; RELIGION; MANNERS; MANUFACTURES; COMMERCE.

Had he been writing to-day on the geography of Virginia, he would have little occasion to change this order of sequence. The

political boundaries are largely located by the rivers and mountains ; the vegetable and animal products are the result of mineral (soil) conditions, and climate ; the population—native and aboriginal—represented the foundation of the government unit, and the religions and customs of the people constituted an important part of the national life ; the manufactures and the commerce were to become the capstone of the nation, both as to internal prosperity and political destiny.

No one had outlined the Virginia boundaries with such clearness as had Peter Jefferson cartographically, and Thomas Jefferson descriptively. The latter described minutely the navigation capacity of each navigable river in the State. As to the importance and possibility of the Mississippi River, he spoke with certainty.

"The Mississippi will be one of the principal channels of commerce of the country westward of the Alleghany. * * * The country watered by the Mississippi and its Eastern branches constitutes five-eighths of the United States."

He discussed at length the comparative advantages of the three possible waterways which represented the gateways from the Atlantic to the great territory west of the Alleghany Mountains, and affirmed that the heavy traffic of the Ohio and Mississippi valleys will always pass down the Mississippi. He mentions flour and lumber as the future typical commodities of traffic. It should be remembered that flour did not become an important export from this region until more than a half century after "Jefferson's Notes" were published. His economic insight into the advantages of the shortest route to the sea is significant. He argued for Alexandria as being the most direct seaport to the Ohio basin.

"For the trade of the Ohio or that which shall come into it from its own waters or the Mississippi, it is nearer through the Patowmac to Alexandria than to New York by 580 miles. * * * The Lakes themselves never freeze, but the communications between them freeze, and the Hudson River is itself shut up by the ice three months in the year ; whereas the channel to the Chesapeake leads directly to a warmer climate."*

The continued projection of trunk railway lines from the Ohio Valley to the waters of the Chesapeake is but added evidence that Jefferson was in advance of his time in his interpretation of economic factors.

His keen intellect could not fail to apprehend the importance of geographic situation in affording protection to the highways of commerce in times of war. He says :

"Add to all this that in case of a war with our neighbors, the Anglo-Americans or the Indians, the route to New York becomes a frontier through almost its whole length, and all commerce through it ceases from that moment."

In Jefferson's time very little was known of the great mountains

* Jefferson's "Notes," p. 20.

west of the Mississippi. His "Notes" give an intelligent study of the Appalachian Mountains, which, he informs us, received their name from the Apalachies (Indians), and that this name was first applied only to their southern extension. He not only took an acute interest in reading whatever had been published relative to the eastern mountains, but travelled over a large part of the Virginia cross-section. Throughout a long period Jefferson studied carefully the climatic conditions of the mountains environing Monticello. His observations on the dew and frost conditions there were tabulated for twelve years. It seemed to him peculiar that the temperature from Williamsburg to Monticello should gradually decrease, while the highest elevations in his neighbourhood had the least dew and frost. His residence was 500 feet above the river, and he notes in his diary that there was from 1741 to 1769 "no instance of fruit killed by the frost in the neighbourhood of Monticello." This region is now the heart of the great Virginia apple belt, and though the horticulturists of to-day point out the advantages for fruit growing with more scientific exactitude, still Thomas Jefferson was the first to study the conditions with reference to this adaptation, and was seventy-five years ahead of his time in his appreciation of the possibilities of the mountain sections of Virginia for apple culture.

He had evinced a very keen interest in different natural phenomena in childhood, and this interest but intensified with the advance of years. His diary is filled with scientific observations made on hunting and pleasure expeditions.

If there was any one geographic subject in which Jefferson was more interested than another, it was the study of weather and climatic conditions. During his absence from home he had a definite understanding with his daughters that they make regular and accurate observations on the climatic conditions at Monticello, and report these in each letter. He, in turn, kept a diary in which he noted the weather conditions wherever he happened to be, and would report them to his daughters regularly in each communication. During Jefferson's residence as a student at Williamsburg, Va., he made accurate weather observations. His meteorological tables, comparing the weather conditions at Williamsburg and Monticello, show his untiring interest in the study, and would appear neither crude nor antiquated in a recent *Bulletin* of the U. S. Weather Bureau. The table shows for a five-year period the average annual rainfall, its monthly distribution, the maximum and minimum daily temperature, and the prevailing direction of the wind. Three hun-

dred and forty-five separate observations on wind direction were noted during one month.

Jefferson's interest in the study of animal and vegetable life was almost comparable to that evinced in the study of climate. Both his "Notes on Virginia" and his private correspondence indicate a marvelous familiarity with the fauna and flora of eastern America. He combats vigorously the assumptions of Buffon as to animal life in America compared with that of Europe. Buffon, in his publications, drew the following conclusions with reference to animal life in America:

1. The animals common to the old and new world are smaller in the latter.
2. Those peculiar to the new are on a smaller scale.
3. Those which have been domesticated in both have degenerated in America.
4. On the whole, it (America) exhibits fewer species.

There can be no misunderstanding Jefferson's refutation of these assumptions. He presents numerous facts to show that many of the American quadrupeds are larger than the most closely related species of Europe, and that the number of native American species (100) is not only greater than for all Europe, but almost equivalent to the total species (126) identified in Europe, Asia and Africa, according to Buffon's estimate for those countries. His defense against Buffon's characterization of the American Indian is one of the most trenchant criticisms ever directed against the great French naturalist and philosopher. He quotes at length from Buffon, Vol. XVIII, page 146, etc., in which Buffon emphasizes the following characteristics of the American Indian: Smallness of stature, physical imbecility, absence of hair on the face, absence of affection for women and children, lack of vivacity, excited to action only by calls of hunger and thirst, etc.

In reply to this interpretation of the traits and character of the American Indian, Jefferson emphasized his virtues and meliorated his weaknesses in a eulogy which has not been surpassed. It is altogether probable that his generous opinion of the Indian's latent possibilities went far toward equipping him for his very successful diplomatic relations with them, for which his administrations, both as Governor of Virginia and President of the United States, were noted. We should also bear in mind that throughout that part of Jefferson's life when he had the opportunity of observing the Indian traits, he was a close student of their habits, and their dialects. One of the severest property losses he ever sustained was the destruction, in 1809, of a large trunk en route from Washington to his Virginia home, which contained manuscripts of his study of the dialects

of thirty tribes. He had devoted himself periodically to this literary pastime through a period of more than forty years.

Thomas Jefferson's accurate information on the geography of his country was recognized in the various public duties to which he was called. This article would be incomplete without calling attention to the more conspicuous of these. One of the first was his appointment on the Committee (with Chase and Howe) "to prepare a plan for the temporary Government of the Western Territory." This report was delivered March 1, 1784, and accepted March 3. It is entirely in Jefferson's hand-writing. The draft of the Deed of Cession of the Northwest Territory was also executed on the same date, and this is in Jefferson's hand-writing. It is therefore not surprising that seventeen years later, when he stood as the chief executive of the nation, that he should realize with renewed interest the possibilities of that frontier country, and of its importance in the future development and destiny of the country. Accordingly, one of the first moves of his administration was to begin negotiations with France for the cession of the Louisiana Territory by purchase. He had, eleven years previous to the date of purchase (April 30, 1803), written to President Washington as to the importance of withholding the Floridas and Louisiana from the British. No other man was so peculiarly fitted for perfecting this negotiation as Thomas Jefferson, for two reasons: first, he was on intimate terms of friendship with the French Government, and his long residence in Paris had acquainted him thoroughly with the diplomatic relations, as they existed between France and England; and second, he had realized longer and proclaimed more persistently the value and possibilities of the great Mississippi Basin than any other man in the public service. I am aware that some have questioned the importance of the part which he performed. Jefferson realized keenly that his political enemies attempted to discount his services in this large acquisition, as may be seen from the following extract from a letter to Horatio Gates, July 11, 1803:

"The territory acquired, as it includes all the waters of the Mississippi, has more than doubled the United States, and the new part is not inferior to the old in soil, climate, productions and important communications. * * These grumblers, too, are very uneasy lest the administration should share some little credit for the acquisition, the whole of which they ascribe to the accident of war. They would be cruelly mortified could they see our files from April, 1801, the first organization of the administration * * ."

How well he realized the situation may be inferred from his letter to Mr. Livingstone, the American minister in France (April 18, 1802):

"There is on the globe, one single spot, the possessor of which is our natural and habitual enemy. It is New Orleans, through which the produce of three-eighths of our territory must pass to market,

and from its fertility it will ere long yield more than half of our whole produce and contain more than half of our inhabitants. France, placing herself in that door, assumes to us the attitude of defiance. * * * The day that France takes possession of New Orleans fixes the sentence which is to restrain her forever within her low water mark. From that minute we must marry ourselves to the British fleet and nation."

Napoleon had no difficulty in taking in this situation, and though he relinquished his rights to the territory with great reluctance, he saw that anything less than the cession of the territory would mean a strengthening of the British, which in its turn would mean a relative weakening of his own power.

That Jefferson's prophesy of the importance of the Mississippi Valley has been fulfilled, no one need be reminded. A reference to the Census statistics of 1900 shows that of the total population, 53.4 per cent. live in the region drained to the Gulf of Mexico, and that 43.9 per cent. of the total population of the United States reside in the basin of the Mississippi.

Simultaneous with the acquisition of this vast territory came the demand for exploring it more thoroughly. Jefferson had his own ideas as to the necessary requisites for success in this hazardous undertaking. When it came to securing a suitable man to lead the expedition, he selected Meriwether Lewis, his private secretary, who had grown up under the shadow of Monticello, and, there is good reason to believe, had developed largely under Jefferson's influence. Jefferson believed in his judgment, his zeal and his endurance, and that he did not misplace his confidence is amply vouch'd for by the success of the expedition. Jefferson found Lewis, first as a country boy, then as his confidential and constant friend, and delegated him for the great task. Lewis was authorized to select his associate, which he did in the person of Captain William Clark.

Jefferson superintended personally the purchase of geographical instruments to be used in the exploration of the Northwest, and of the rivers of Louisiana. On the acquisition of the Louisiana Territory he set about to equip explorers in a scientific way, and so encouraged scientific exploration as to make his administration stand out more conspicuously in this important work than that of any other president.

If Jefferson had turned his attention entirely to the field of science, as he affirmed, late in life, he should have done for the realization of the greatest personal pleasure, he unquestionably would have become noted on the side of economic observation and investigation. Whatever the nature of the subject which came to his attention, he showed a remarkable power of analysis and interpretation on the utility side. As an illustration, we may point

to his personal correspondence with President Washington during his residence in Paris. As early as 1788 he sent President Washington a report on the canal system of France, and suggested that it would be very desirable to connect Lake Erie by canal with the Ohio River.

During his residence in Europe he had a definite understanding with a coterie of friends in America to compare notes on the different economic problems which came under their respective observation. One of these which engaged his constant attention was the comparison of European and American plants, and the possible improvements which might be wrought by transplanting European species to America. Many trees, shrubs and flowers were forwarded to his estates in Virginia, where they were planted with great care, and were objects of his special interest and pleasure during his old age.

The great statesman, at the age of eighty, announced to some of his close friends that he had kept what he called a garden book since 1766, and that since 1774 he had also kept a farm book. In these books he kept a record of his observations on the growing crops, and associated with them meteorological observations. His library contained all of the more recent and authoritative books on agriculture and horticulture. It is probably not generally known that Jefferson, as the originator of the University of Virginia and the directing spirit in its building and organization, strongly advised that scientific agriculture be made a separate department, and that European institutions be canvassed for securing the most capable man for the position. He was unable, however, to secure the necessary funds for meeting both the building and professional purposes as he had planned them. If it had been carried out according to his expressed desire, it would have been the first American university to offer an advanced course in agriculture.

Since his interest was greatest on the economic side, and since his study of regions was with reference to their potential possibilities, we believe that in the economic interpretation of geography, Jefferson as a student, was in advance of any American contemporary.